Project B-226

HOUSEHOLD WAXES AND POLISHES
A MANUFACTURING OPPORTUNITY IN ATLANTA

Prepared for

FORWARD ATLANTA
The Atlanta Chamber of Commerce

by

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Foreword

Like the two preceding product reports in this series, this one points up one of the many manufacturing opportunities which exist because of Atlanta's strong economic position. In this case, it is Atlanta's preeminence as the wholesaling center of the South which provides the base for the analysis.

As noted in the report, additional information of interest to a particular company in the waxes and polishes field, or further analysis tailored to the needs of a particular company interested in this manufacturing possibility will be prepared on a confidential basis if requested. Comments or inquiries regarding the analysis are invited.

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Summary

The retail market in the Southeast[1/] for household waxes and polishes is more than $30 million. By 1967 sales should exceed $34 million. Since Atlanta is the wholesaling center of the South, a very large percentage of these waxes and polishes are originally sold in Atlanta.

An Atlanta plant has a freight advantage over Chicago in an area extending from Texas to Massachusetts. Therefore, a Chicago company could serve the entire South (16 states) and more from an Atlanta plant, at less freight cost than from Chicago. The South has a 1960 retail market of $73 million and an estimated 1967 market of $84 million. This $73 million would be approximately $40 million at the manufacturers' selling price. With a 10 per cent market penetration the plant could expect wholesale sales of $4 million with a 90 per cent increase in earnings over a comparable Chicago plant.

The following cost advantages could be expected for an Atlanta plant:

1. $80,000 reduction in freight costs,
2. $46,000 reduction in labor costs, and
3. $25,000 reduction in property taxes.

Total savings would therefore exceed $150,000 annually.

No attempt has been made to quantify the additional savings that would accrue from the lower construction costs, the lower natural gas rates, or the lower electric rates that prevail in Atlanta.

Nevertheless, these factors would add to the considerable savings already indicated.

1/ Alabama, Florida, Georgia, North Carolina, South Carolina, and Tennessee.

MARKET ESTIMATE FOR HOUSEHOLD WAXES AND POLISHES IN THE SOUTH

The retail market for household waxes and polishes in the Southeast[1/] is $30,260,000. In the South[2/] (see Map 1) it is $73,000,000 and in the United States it is $259,800,000.[3/]

The 32 Standard Metropolitan Statistical Areas (SMSA) in the six states account for 47 per cent of the retail sales in the Southeast. Atlanta, the largest, has sales of $1.5 million and accounts for 29 per cent of the total sales in Georgia. South of Georgia in the peninsula of Florida are Miami, with sales of $1.4 million, and Tampa-St. Petersburg with sales of $1.1 million.

Florida has the highest sales, amounting to over $7 million, and is followed by North Carolina, with sales of almost $6 million. Located geographically between the top two states is Georgia, number three in sales with a total of $5 million. Tennessee, Alabama, and South Carolina follow in descending order.

Atlanta is a natural pivot point in the sales area which is not limited to these six states. The area actually to be served by an Atlanta branch plant is a function of the location of an individual company's other plants. For most companies, this area would be at least the territory covered by the 16 states that are included in the South, with a market of $73 million.

The estimated sales by southeastern states are shown in Table 2. Tables 3 through 9 are sales for the Standard Metropolitan Statistical Areas (SMSA) in the southeastern states. Map 2 shows the SMSA sales in graphic form on a map of the Southeast.

The majority of the manufacturing plants for the subject products are located in the northeastern United States. This is illustrated by Map 3, which shows the value of shipments for each state. The top states are New York, Illinois, Wisconsin, Ohio and Massachusetts. Each has a value of shipments of over $20 million (polishing preparations, SIC 28424) and the five

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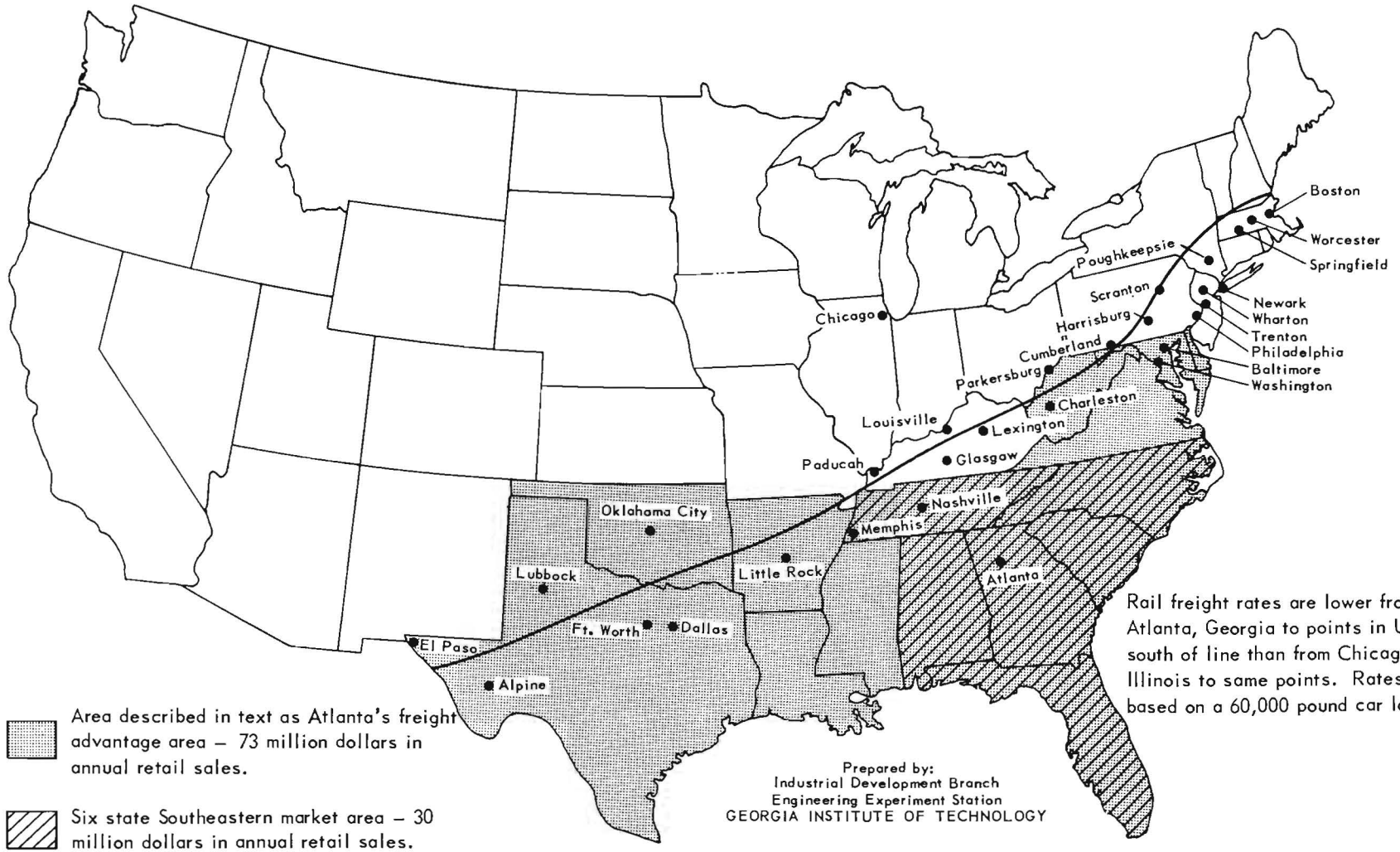
1/ 6 states: Alabama, Florida, Georgia, North Carolina, South Carolina, and Tennessee.

2/ 16 states: Alabama, Arkansas, Delaware, Florida, Louisiana, Kentucky, Maryland, Georgia, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

3/ Summary of 1960 Sales of Food Products, Food Topics, Volume 16, No. 9, September 1961.

MAP 1

AREA WHERE FREIGHT COSTS ON HOUSEHOLD WAXES AND POLISHES WILL BE LESS FROM ATLANTA, GEORGIA THAN FROM CHICAGO ILLINOIS



states account for 68 per cent of the total shipments in the United States.

This estimate covers retail sales of consumer waxes and polishes. The types covered are shown in the following list:

self polishing floor wax,
paste floor wax,
liquid floor wax,
furniture polish,
automobile polish,
shoe polish.

The estimated sales are for consumer-size packages and do not include sales in bulk packages.

The floor and furniture polish group is shown in Table 1 with the sales breakdown for each kind.

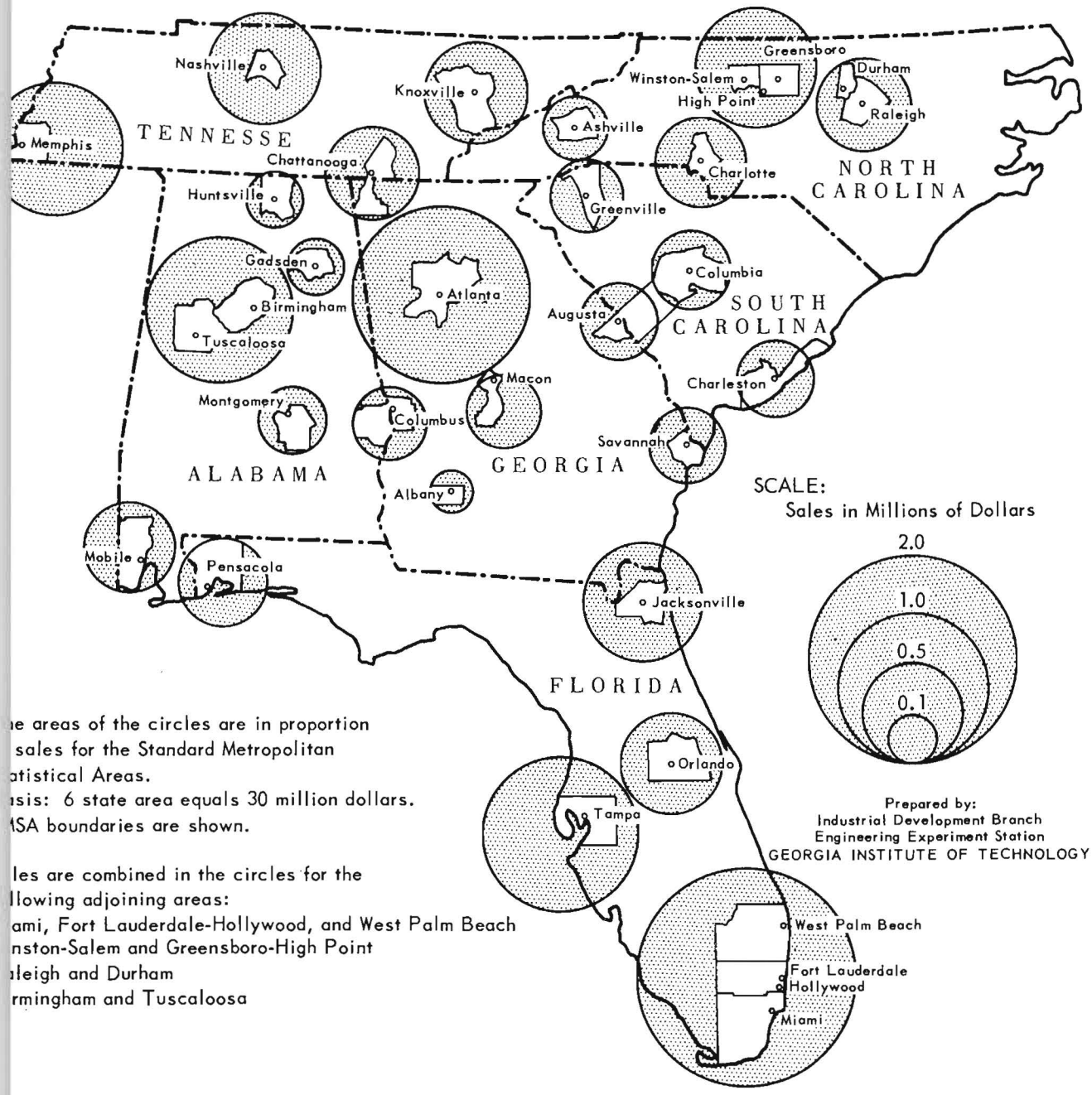
Table 1

Sales of Floor and Furniture Polish by Kind

	Per Cent of Sales
Self Polishing Floor Wax	74.1
Paste Floor Wax	5.4
Liquid Floor Wax	6.5
Furniture Polish	14.0
Total Floor and Furniture Polish	100.0

The method used to estimate the market is discussed in Appendix 1. For floor and furniture polish sales estimates are based on family income. Automobile polish sales are based on motor vehicle registrations, and shoe polish sales are based on population.

MAP 2
RETAIL SALES OF HOUSEHOLD WAXES AND POLISHES IN
STANDARD METROPOLITAN AREAS
IN THE SOUTHEAST



ıe areas of the circles are in proportion
sales for the Standard Metropolitan
ıtistical Areas.
ısis: 6 state area equals 30 million dollars.
ISA boundaries are shown.

les are combined in the circles for the
llowing adjoining areas:
ami, Fort Lauderdale-Hollywood, and West Palm Beach
nston-Salem and Greensboro-High Point
ıleigh and Durham
rmingham and Tuscaloosa

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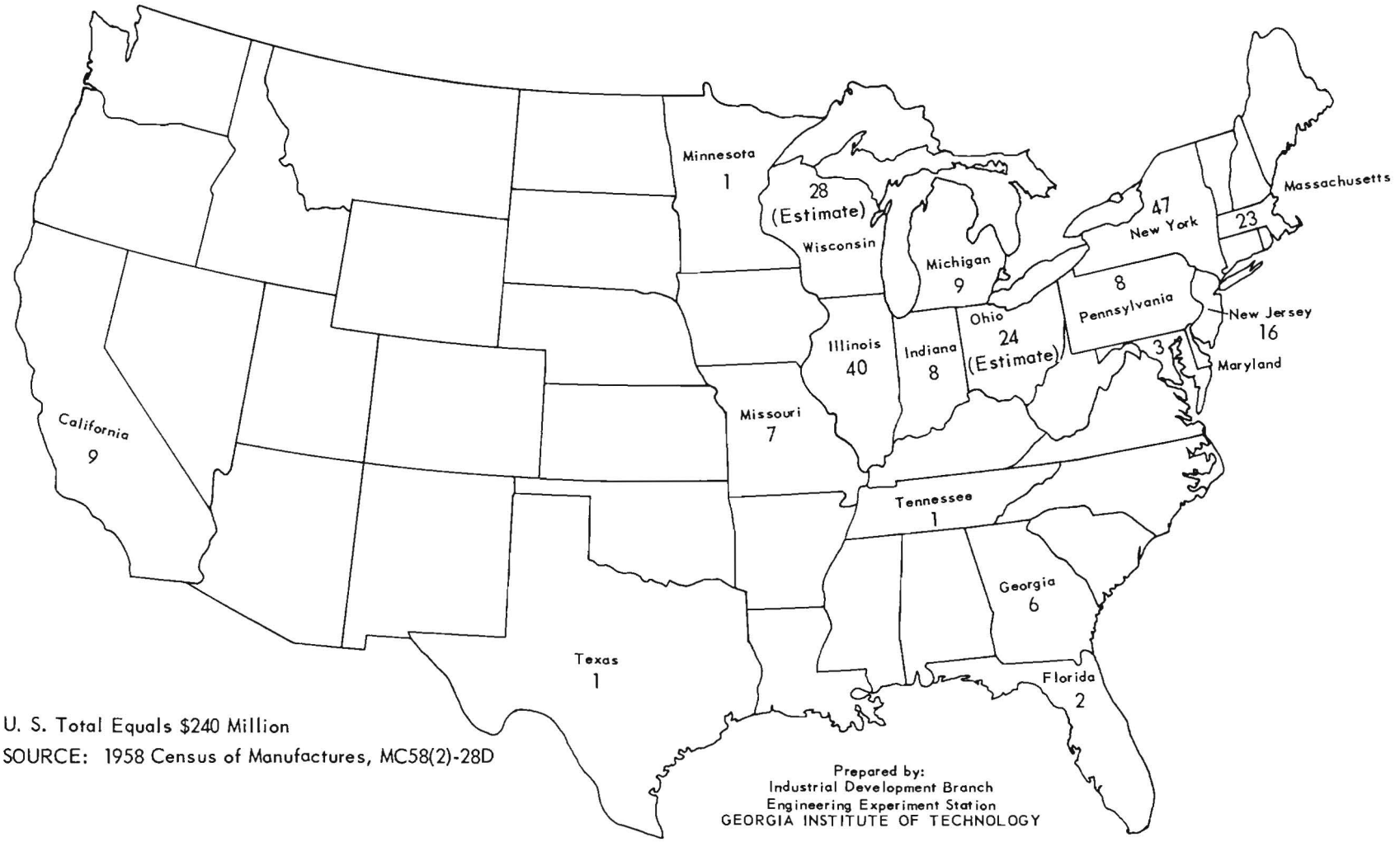
MAP 3
VALUE OF SHIPMENTS FROM POLISHING PREPARATIONS ESTABLISHMENTS
(SIC 28424) BY STATE AT MANUFACTURERS' SELLING PRICE
(in millions of dollars)



U. S. Total Equals $240 Million

SOURCE: 1958 Census of Manufactures, MC58(2)-28D

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Table 2

Summary of Household Waxes and Polishes Retail Sales, 1960

	U. S.	ALABAMA	FLORIDA	GEORGIA	N. CAROLINA	S. CAROLINA	TENNESSEE	6 STATE TOTAL	PER CENT of U. S.
Floor & Furniture Polish	$128,740,000	$1,907,500	$3,454,100	$2,380,200	$2,667,400	$1,295,100	$2,172,500	$13,876,800	10.8
Automobile Polish	54,020,000	935,000	1,729,000	1,104,000	1,257,000	642,000	954,000	6,621,000	12.2
Shoe Polish	77,040,000	1,400,000	2,140,000	1,690,000	1,955,000	1,045,000	1,529,000	9,759,000	12.7
Total	$259,800,000	$4,242,500	$7,323,100	$5,174,200	$5,879,400	$2,982,100	$4,655,500	$30,256,800	11.7

Table 3

Summary of Household Waxes and Polishes Retail Sales in the Standard Metropolitan Statistical Areas, 1960

	ALABAMA SMSA	FLORIDA SMSA	GEORGIA SMSA	N. CAROLINA SMSA	S. CAROLINA SMSA	TENNESSEE SMSA	6 STATE TOTAL SMSA
Floor & Furniture Polish	$943,175	$2,363,660	$1,289,016	$776,450	$409,410	$1,131,310	$6,912,021
Automobile Polish	391,521	1,067,870	553,021	351,140	196,250	429,920	2,989,722
Shoe Polish	617,060	1,389,650	811,570	479,010	294,020	718,180	4,309,490
Total	$1,951,756	$4,820,180	$2,653,607	$1,606,600	$899,680	$2,279,410	$14,211,233
Per cent of State	46%	66%	51%	28%	30%	49%	47%

Table 4

Alabama

Retail Sales of Household Waxes and Polishes in the Standard Metropolitan Statistical Areas, 1960

	ALABAMA	BIRMINGHAM	GADSDEN	HUNTSVILLE	MOBILE	MONTGOMERY	TUSCALOOSA	SMSA TOTAL
Floor & Furniture Polish	$1,907,500	$433,400	$63,440	$78,740	$201,910	$105,430	$60,255	$943,175
Automobile Polish	935,000	171,970	29,550	35,330	83,410	45,640	25,620	391,521
Shoe Polish	1,400,000	271,720	41,510	50,220	134,520	72,420	46,670	617,060
Total	$4,242,500	877,090	134,500	164,290	419,840	223,490	132,545	1,951,756
Per cent of State		21%	3%	4%	10%	5%	3%	46%

Table 5

Florida

Retail Sales of Household Waxes and Polishes in the Standard Metropolitan Statistical Areas, 1960

	FLORIDA	FORT LAUDERDALE HOLLYWOOD	JACKSONVILLE	MIAMI	ORLANDO	PENSACOLA	TAMPA - ST. PETERSBURG	WEST PALM BEACH	SMSA TOTAL
Floor & Furniture Polish	$3,454,100	$256,890	$312,230	$698,670	$229,530	$134,650	$567,220	$163,470	$2,362,660
Automobile Polish	1,729,000	122,150	127,190	303,680	107,520	69,490	259,660	78,180	1,067,870
Shoe Polish	2,140,000	142,930	194,920	400,200	136,310	87,050	330,610	97,630	1,389,650
Total	$7,323,100	521,970	634,340	1,402,500	473,360	291,190	1,157,490	339,280	4,820,180
Per cent of State		7%	9%	19%	6%	4%	16%	5%	66%

Table 6

Georgia

Retail Sales of Household Waxes and Polishes in the Standard Metropolitan Statistical Areas, 1960

	GEORGIA	ALBANY	ATLANTA	AUGUSTA	COLUMBUS	MACON	SAVANNAH	SMSA TOTAL
Floor & Furniture Polish	$2,380,200	$46,346	$739,850	$128,800	$130,190	$120,190	$123,640	$1,289,016
Automobile Polish	1,104,000	17,100	324,510	58,200	55,721	47,960	49,530	553,021
Shoe Polish	1,690,000	32,390	435,360	92,720	93,300	77,210	80,590	811,570
Total	$5,174,200	$95,836	$1,499,720	$279,720	$279,211	$245,360	$253,760	$2,653,607
Per cent of State		2%	29%	5%	5%	5%	5%	51%

Table 7

North Carolina

Retail Sales of Household Waxes and Polishes in the Standard Metropolitan Statistical Areas, 1960

	NORTH CAROLINA	ASHEVILLE	CHARLOTTE	DURHAM	GREENSBORO - HIGH POINT	RALEIGH	WINSTON-SALEM	SMSA TOTAL
Floor & Furniture Polish	$2,667,400	$87,215	$194,995	$74,130	$175,075	$108,055	$136,980	$776,450
Automobile Polish	1,257,000	38,220	78,760	31,950	80,370	62,100	59,740	351,140
Shoe Polish	1,955,000	55,670	116,460	47,930	105,510	72,370	81,070	479,010
Total	$5,879,400	181,110	390,220	154,010	360,960	242,530	277,790	1,606,600
Per cent of State		3%	7%	3%	6%	4%	5%	28%

Table 8

South Carolina

Retail Sales of Household Waxes and Polishes in the Standard Metropolitan Statistical Areas, 1960

	SOUTH CAROLINA	CHARLESTON	COLUMBIA	GREENVILLE	SMSA TOTAL
Floor & Furniture Polish	$1,295,100	$123,990	$144,340	$141,080	$409,410
Automobile Polish	642,000	51,140	76,630	68,480	196,250
Shoe Polish	1,045,000	92,610	111,630	89,780	294,020
Total	$2,982,100	$267,740	$332,600	$299,340	$899,680
Per cent of State		9%	11%	10%	30%

Table 9

Tennessee

Retail Sales of Household Waxes and Polishes in the Standard Metropolitan Statistical Areas, 1960

	TENNESSEE	CHATTANOOGA	KNOXVILLE	MEMPHIS	NASHVILLE	SMSA TOTAL
Floor & Furniture Polish	$2,172,500	$197,600	$250,360	$406,030	$277,320	$1,131,310
Automobile Polish	954,000	78,960	107,380	140,160	103,420	429,920
Shoe Polish	1,529,000	121,200	157,530	268,360	171,090	718,180
Total	$4,655,500	$397,760	$515,270	$814,550	$551,830	$2,279,410
Per cent of State		9%	11%	17%	12%	49%

Forecast

In 1967 the retail sales of waxes and polishes in the six states should exceed $34 million, sales in the entire South should reach $84 million, and the U. S. market should be $297 million. This is a 15 per cent increase over 1960. Southeastern sales are expected to increase faster than the national average. This estimate is based on forecasts of incomes and population.[1, 2/]

The sales and forecasts by area are restated below:

Area	1960 Retail Sales	1967 Forecast of Retail Sales
Southeast	$30,000,000	$34,500,000
South	73,000,000	84,000,000
U. S. A.	259,800,000	297,000,000

Sales from 1950 through 1960 are shown on the graph in Figure 1. Increases and decreases in sales are shown for this period of time for each type of polish.

The total sales for waxes and polishes show a trend similar to the national disposable income, when the national disposable income is expressed in constant dollars. For example, this is shown by the ratio of sales to disposable income and is graphed in Figure 2. It should be noted that the ratio has alternated around the average. Table 15 in Appendix 2 lists the sales, disposable income and ratio for 1950 to 1960.

Sales for the United States appear to be in direct proportion to production, with very little increase in dollar volume due to inflation. The price histories of specific brands fall into three groups, i.e., increasing, decreasing, and unchanged. The prices of 11 brands of self-polishing floor wax have the following history from 1952 through 1959:

decreasing price - - - - - 5 brands;
unchanged price - - - - - 3 brands;
increasing price - - - - - 3 brands.

Figure 3 is a graph of the trends of sales and of disposable income. The trend line for disposable income was computed by the least squares method.

1/ Income Trends in the United States through 1975, B. Brown and J. Tate, Stanford Research Institute.

2/ 50 Million Consumers. Proceedings of conference on the economic future of the South, sponsored by Southern Research Institute.

FIGURE 1
HOUSEHOLD WAX AND POLISH SALES IN MILLIONS OF DOLLARS

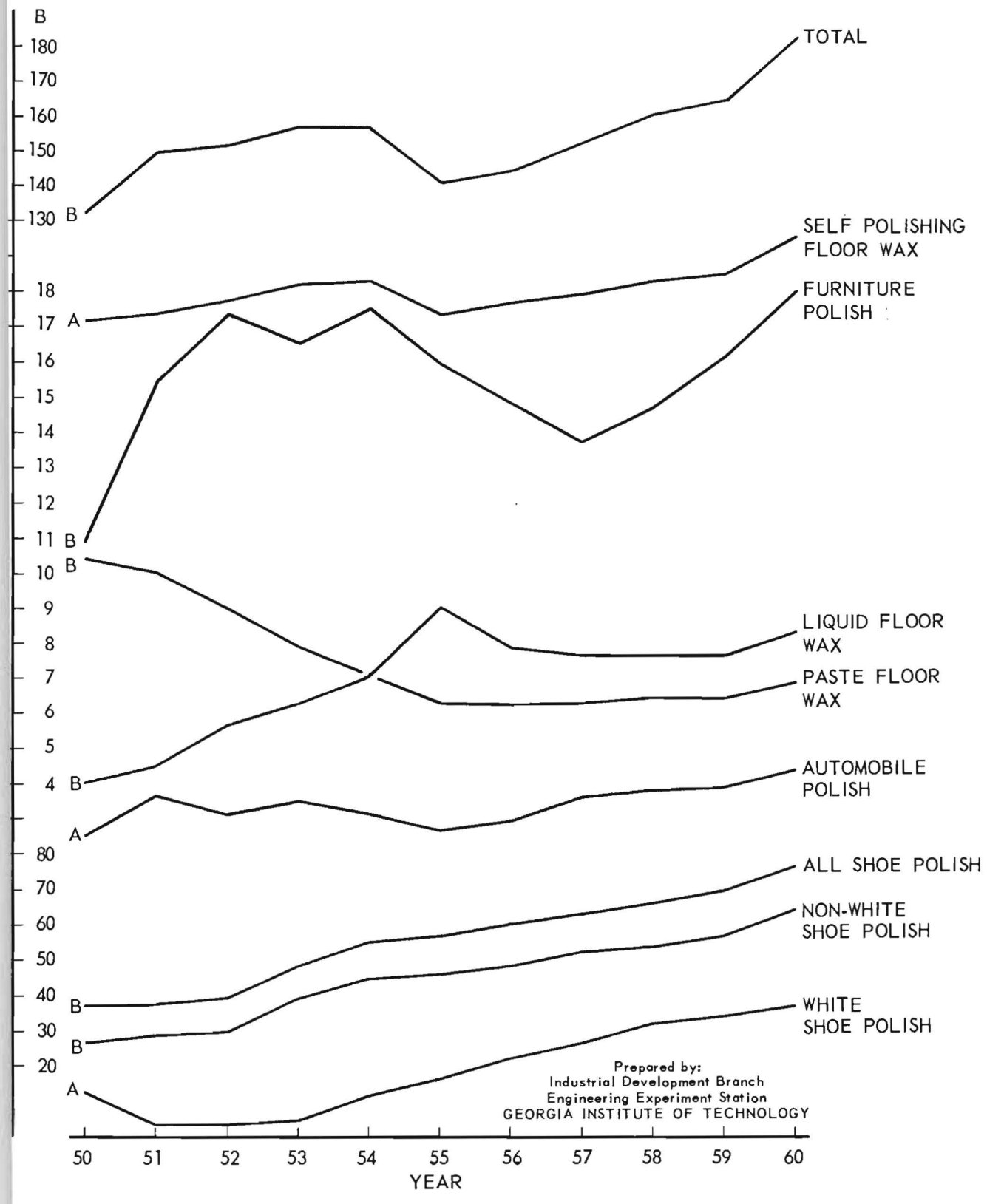
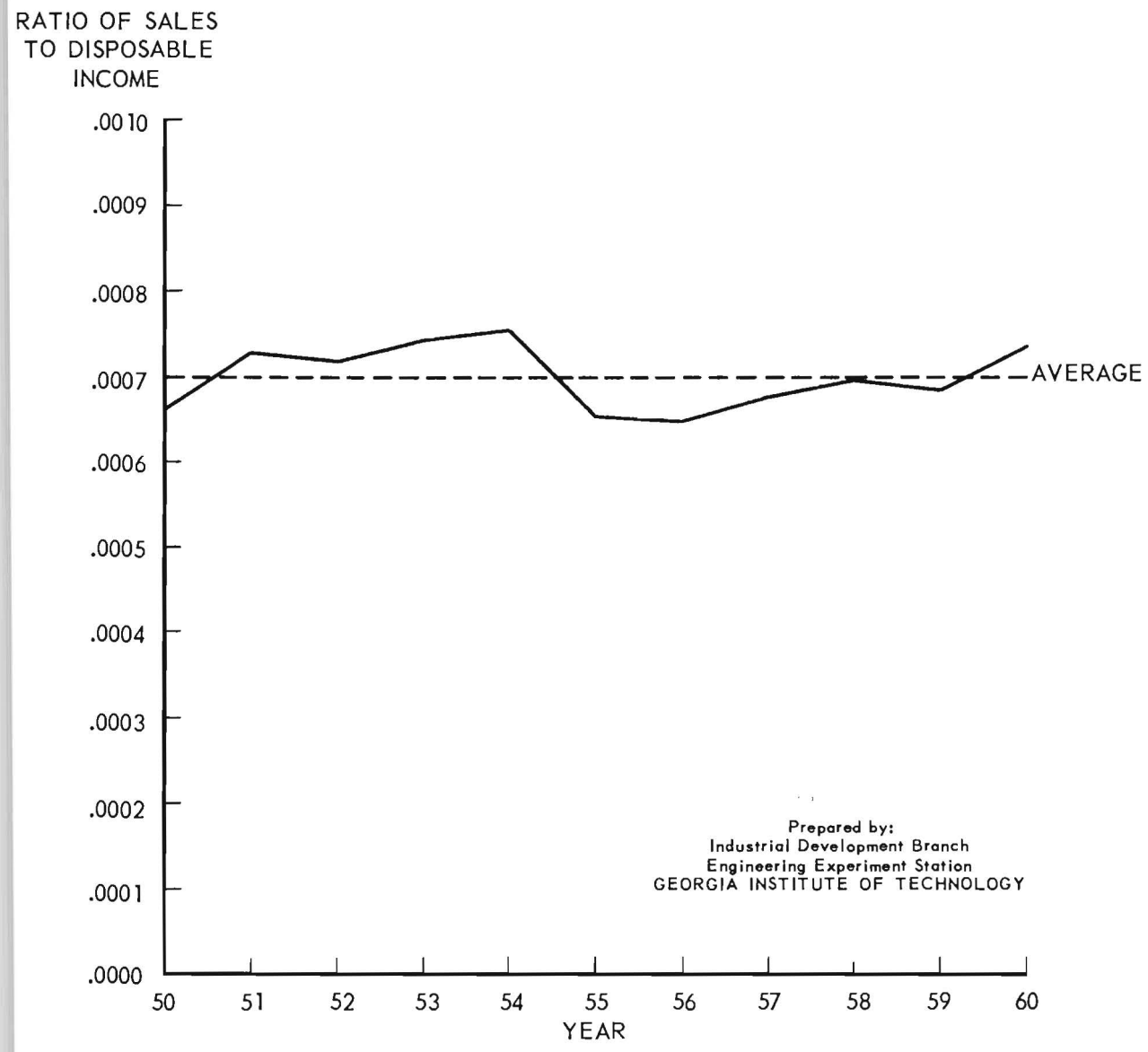


FIGURE 2
TREND OF RATIO OF HOUSEHOLD WAX AND POLISH SALES TO
PERSONAL DISPOSABLE INCOME



When U. S. sales of household waxes and polished are divided by the personal disposable income (income expressed in 1960 dollars) the quotient will vary between 0.00064 and 0.00076 for the years 1950 to 1960. The average for this period is 0.00070.

The actual data for 1950 through 1960 fit the linear curve very closely, although the long term trend is non-linear. The trend line for wax and polish sales is computed by multiplying the disposable income trend value by 0.0007. The latter factor is the average ratio from 1950 through 1960 of household wax and polish sales to U. S. personal disposable income.

ADVANTAGES OF AN ATLANTA BRANCH PLANT FOR THE SOUTHERN MARKET

Atlanta has a wide range of advantages to offer a plant located in the area. Atlanta is to the South what New York and Washington are to the nation. Some 3,500 national concerns are represented by warehouses, branch plants or sales offices. Effective relationships are therefore relatively easy to establish and maintain with suppliers and customers.

Lower Freight Costs

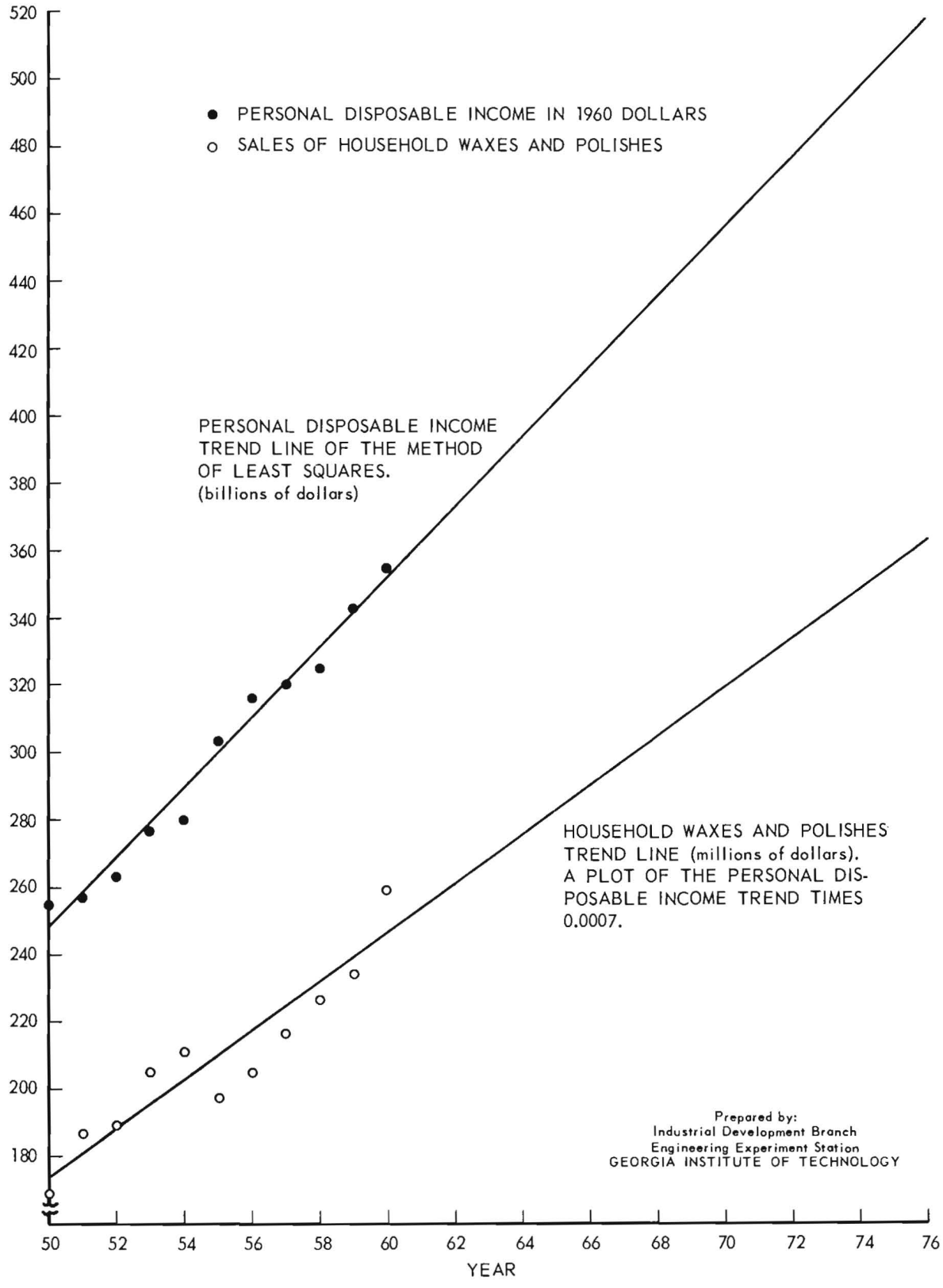
A plant in Atlanta would enjoy a considerable freight advantage over one in the North. Table 10 demonstrates possible freight savings. It shows a comparison of freight rates from Chicago and from Atlanta to major metropolitan consuming points of the Southeast. Rail shipments are used from Chicago. From Atlanta, rail and motor carrier shipments are shown. Motor carrier rates are shown for Georgia and the five bordering states. Rail rates for the 10 other southern states are also shown. The use of motor freight, although at a higher rate than rail, is much faster and more flexible. Savings range up to 90 cents per hundredweight.

Map 1 shows the areas where an Atlanta plant would have an advantage over a Chicago plant. This area coincides closely with the 16 states described as the South in this report, an area with $73 million in annual retail sales of household waxes and polishes.

A calculation for an Atlanta plant and a Chicago plant shows $80,000 per year freight savings for the plant in Atlanta, assuming a 10 per cent market penetration in the 16 southern states. The calculation is described in Appendix 3. Chicago was selected as a comparison point because it has 64 plants manufacturing polishes and sanitation goods. (SIC 2842.)

Cost savings for a company whose plant is not now in Chicago would depend on the distance the plant is from Atlanta and the distance the plant is from container manufacturers.

FIGURE 3
TREND OF PERSONAL DISPOSABLE INCOME AND OF SALES
OF HOUSEHOLD WAXES AND POLISHES



Atlanta is served by 13 main lines of 7 rail systems and over 75 fixed route motor freight carriers. Six major air lines serve the city at a new $24 million air terminal.

Sites and industrial districts are abundant. Over 40 major industrial districts offer many types of sites. Some are available near to and adjoining the container manufacturers.

Manufacturers of Containers in Atlanta

Of the container plants, five are in an area within a 2 mile radius on the edge of the city. Both the radial expressway and the circumferential expressway (under construction) pass through the area. Rail facilities and utilities are established.

Manufacturers of metal, plastic and glass containers have plants in Atlanta.

Plant	Products
American Can Company	Carbonated beverage cans, oblong floor polish cans, beer cans, paper tubes with metal ends, lithographing facilities
Crown Cork and Seal Co.	General, open top cans, aerosol cans, aluminum cans, beer cans, bottle tops, oblong floor polish cans, lithographing facilities
Knox Glass Company	Glass containers
Owens-Illinois Glass Co., Glass Container Division	Glass containers
Owens-Illinois Glass Co., Plastic Products Division	High density linear polyethylene bottles
Polyco Incorporated	High density and low density polyethylene bottles

Atlanta has a wide range of companies with products and services to offer a manufacturer of household waxes and polishes. These include (in addition to suppliers of containers) manufacturers of folding, corrugated and display boxes. Lithography, printing and contract filling are also available.

For the company seeking a location, land, building design, construction and financing are offered in package contracts. This arrangement is being used by several companies with plants now under construction.

Table 10

Freight Rates on Household Waxes and Polishes
from Chicago and from Atlanta to Southern Cities *

State	SMSA	From Chicago (Rail) 1/ $/cwt.	From Atlanta (Motor) 2/ $/cwt.	Savings Atlanta vs. Chicago $/cwt.
Alabama	Birmingham	1.02	.63	.39
	Mobile	1.30	.88	.42
Florida	Ft. Lauderdale	1.75	1.21	.54
	Jacksonville	1.49	.85	.64
	Miami	1.79	1.23	.56
	Orlando	1.59	1.02	.57
	Tampa	1.59	1.02	.57
	St. Petersburg	1.63	1.05	.58
Georgia	Atlanta	1.20	.30	.90
	Augusta	1.35	.58	.77
N. Carolina	Charlotte	1.30	.78	.52
	Greensboro	1.28	.88	.40
	Highpoint	1.30	.85	.45
S. Carolina	Columbia	1.30	.72	.58
Tennessee	Memphis	.97	.95	.02
	Nashville	.90	.71	.19
			Rail	
Arkansas	Little Rock	1.28	1.21	.07
Delaware	Wilmington	1.52	1.24	.28
Louisiana	New Orleans	1.35	.88	.47
Maryland	Baltimore	1.47	1.16	.31
Mississippi	Jackson	1.18	.81	.37
Texas	Dallas	1.64	1.55	.09
	Houston	1.74	1.55	.19
Virginia	Richmond	1.52	.93	.59
W. Virginia	Charleston	1.08	.93	.15

* In addition, rates include better services from Atlanta by using motor freight to Georgia and its 5 bordering states over rail from Chicago.

1/ Carload of 60,000 pounds; the rate in the table is the average of the minimum on 22,000 pounds plus the excess on 38,000 pounds.

2/ Truckload of 22,000 pounds minimum.

Lower Labor Costs

Not only are labor costs per man hour lower in Georgia than in the northern manufacturing belt, but production per man hour is often higher.[1/] As an indication of what might be expected in an Atlanta plant, the following tabulation from the U. S. Census Bureau is given:

Area	Value of Shipments Per Dollar of Production Wages[2/]
Georgia	24.7
Illinois	19.6
North Central States	19.3
United States	16.4
Middle Atlantic States	14.3
New York	14.2
California	13.4

The value of production per dollar of production wages applied to the hypothetical plant, comparing Atlanta and Chicago, shows a production pay roll savings of over $46,000 per year. The computations of the savings are tabulated below.

Location	Annual Plant Sales in Mfg. Dollars		Value of Shipments Per Dollar of Production Wages		Annual Production Pay Roll
Illinois	$4,340,000	÷	19.6	=	$222,000
Georgia	$4,340,000	÷	24.7	=	$175,600
Production pay roll savings in Georgia					$ 46,400

1/ See Charles H. Sewell, A Formula for Labor Productivity in Georgia, July 1961.

2/ Obtained by dividing the value of shipments by production wages for SIC 2842 found in Table 2, U. S. Census of Manufactures, 1958. Industry Report MC58 (2)-28D.

Lower Property Taxes

Property tax savings for the Atlanta plant over the Chicago plant amount to $25,000, or a savings in Atlanta of 70 per cent of the Chicago tax. A description of the property follows, with a tabulation of the tax in Atlanta and Chicago. Tax rates used are for unincorporated areas in the respective counties.

Property	Investment	Atlanta Area Tax[1/]	Chicago Area Tax[2/]
Land	$20,000	$256	$940
Building	$450,000	$5,760	$21,070
Equipment	$175,000	$2,240	$8,200
Inventory	$165,000	$2,114	$5,410
Total	$810,000	$10,370	$35,620

Savings of Atlanta plant: $25,250

Property taxes in the Atlanta areas are, therefore, only 30 per cent of the Chicago area taxes.

Availability of Raw Materials

Raw materials available in the Southeast include polymers, fuller's earth, colloidal clays, talc, hydrogenated vegetable oils and pine oil. In addition, Texas and Louisiana are the sources for raw materials derived from the petroleum and petrochemical industries.

Borden Chemical Company, producer of acrylic, styrene-acrylic and polystyrene polymer emulsions for floor polish, has a polymer plant in Demopolis, Alabama, 265 miles from Atlanta.

The use of floor polish concentrates saves freight costs. If a 40 per cent solids polish concentrate is shipped instead of the 13 per cent emulsion,

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1/ For Clayton County, Georgia, unincorporated area, Tax Guide, Atlanta Metropolitan Area, Atlanta Chamber of Commerce.

2/ For Cook County, Illinois, unincorporated area, Moody's Governments and Municipals, 1962.

then 65 per cent of the freight bill would be saved.[1/]

The increasing number of polymer producers has created a competitive situation where freight is now either equalized or allowed. This reduces the freight cost factor for the formulator's raw materials.[2/]

Other Factors

The cost advantage of an Atlanta plant would be greater than the illustration presented in the summary due to the factors listed below:

1. Lower capital investment is required for a given production capacity in Georgia than in Illinois. This lowers property taxes even more, and increases the per cent return on the investment as well as increasing the actual earnings.

Construction costs are proven to be low. Leading contractors are building plants in the Atlanta area at costs that are 15 to 40 per cent less than construction costs elsewhere. A specific example of this is two buildings for the same company and to the same plans. The bid in Atlanta was $60,000 and on a site in New Jersey the bid was $95,000. Another comparison under the same conditions found Atlanta costs 20 per cent lower than costs in a central Illinois town.

Contractors say the main reasons that construction costs are lower in Atlanta are climate and worker productivity. There are more working days under favorable conditions. The attitudes of the workers -- both union and non-union -- are superior and permit effective use of new labor-saving tools.

2. Natural gas rates are 50 to 55 per cent lower in Atlanta than in Chicago. Additional savings are realized because of the milder and shorter winters in Atlanta.

3. Electric rates are 25 to 30 per cent lower in Atlanta than in Chicago.

Increase in Earnings

Estimated earnings in an Atlanta plant are 90 per cent greater than in a Chicago plant. The earnings were estimated by assuming the Chicago plant

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1/ Klaus S. Treviranus, "Floor Polish Concentrates," Soap and Chemical Specialties, January 1961.

2/ "Polymers Shine in Floor Polish Picture," Chemical Week, June 13, 1959.

earns 10 per cent on an $810,000 investment after federal income taxes.

The savings of the Atlanta plant are:

$80,000 savings on freight;
$46,000 savings on labor;
$25,000 savings on property tax;

$151,000 savings per year.

The savings expressed as a per cent of sales are:

$$\frac{\$ \quad 151,000}{\$ \ 4,340,000} \quad (100) = 3.5 \text{ per cent of sales.}$$

The increase in earnings represented by the savings is $72,400 per year after allowing for 52 per cent federal income taxes. Tabulation of earnings is:

$81,000 earnings on Chicago plant
$72,400 additional earnings on Atlanta plant over a Chicago plant

$153,400 earnings on Atlanta plant

Increase in earnings: $\frac{72,400}{81,000}$ (100) = 89.5 per cent

Conclusion

In serving the southern market, greater earnings are possible from an Atlanta plant than from a northern plant. However, the actual increase in earnings that a company would realize can only be determined from a case study for that company. As mentioned in the Foreword, studies can be made for interested companies.

APPENDIX 1

METHOD USED FOR MARKET ESTIMATE

The expenditures of a family are proportional to the family's annual income. The study for Life[1/] on consumer expenditures shows the following relationship between income and expenditures for wax and polish type items:

Annual Income	Average Annual Household Expenditures for Waxes, Polishes, and Cleaners
Under $2,000	$2
$2,000-2,999	$4
$3,000-6,999	$6
$7,000 or more	$8

The average annual expenditure by a family in each income bracket for household waxes and polishes has been computed using the following method. Based on the 1960 census, the number of families in the United States in the various income brackets is shown in Table 11. The expenditures for the Life study category of waxes, polishes, and cleaners for each income group are shown in column 4. Column 5 gives the per cent of total expenditures in each income bracket. This percentage is used to break down total sales of floor and furniture polish[2/] into the income brackets, and is shown in Table 12. The average expenditure, per family, in each income bracket was obtained by dividing the total sales by the total number of families.

1/ Life Study of Consumer Expenditures, 1957, conducted for Life Magazine, by Alfred Politz Research, Inc.

2/ Summary of 1960 Sales of Food Store Products, Food Topics, Volume 16, No. 9, September 1961.

Table 11

Calculation of Family Expenditures for Waxes, Polishes and Cleaners in 1960

Family Income Bracket	No. of Families in U. S., 1960 (in thousands)	Life Study: Per Household Expenditure	Total Expenditure (in thousands)	Per Cent of Total Expenditure
Under $2,000	5,898	$2	$11,796	4.3
$2,000-2,999	3,970	$4	$15,880	5.8
$3,000-6,999	19,957	$6	$119,742	43.9
$7,000 or more	15,610	$8	$124,880	46.0
Total	45,435		$272,298	100.0

Table 12

1960 Sales of Floor and Furniture Polish

Family Income Bracket	Total (in thousands)	Average Annual Expenditure per Family
Under $2,000	$5,580	$ .95
$2,000-2,999	$7,510	1.89
$3,000-6,999	$56,600	2.84
$7,000 or more	$59,050	3.79
Total	$128,740[1/]	

Families versus Households

Families compose only a part of the total households, as shown in Table 13. The number of families is used as the basis for the market estimate. Census breakdowns of the non-family incomes show that a high percentage is in the low income brackets that account for less than 10 per cent of sales.

1/ Summary of 1960 Sales of Food Store Products, Food Topics, Volume 16, No. 9, September 1961.

Table 13

Families as a Per Cent of Households by State

United States	84.2
Alabama	88.5
Florida	82.7
Georgia	87.9
North Carolina	89.8
South Carolina	88.9
Tennessee	88.2

If sales had been estimated for each state simply by prorating according to population, the sales for the six-state area would have totaled $32,870,000, but since incomes are below the national average in the South, the family income method was used. This put sales at $30,256,800 or 92 per cent of the method based on population. The results, using both methods, are shown in Table 14.

To calculate the sales for the 16-state South, the U. S. sales were prorated according to population. This high figure was corrected using the 92 per cent obtained in the six-state computation. The resulting estimated sales for the South are $73,300,000. The calculations are tabulated below.

54,970,000 population in 1960 for 16-state South × $1.45 U. S. per capita sales, 1960 = $79,700,000 southern sales by using population.

$79,700,000 × .92 -- factor to adjust to family income method =

$73,300,000 southern sales estimate.

Table 14

Comparison of Sales Estimate

Computed by prorating sales according to population and by the family income bracket method.

U. S. total 1960 Household Waxes and Polishes Sales: $259,800,000

U. S. 1960 population: 179,323,000 people

U. S. Per capita sales: $1.45 per person

State	Population	Sales by Proration According to Population	Sales by Family Income Bracket Method	Comparison, Family Income to Population Method Per Cent
Alabama	3,266,000	$4,730,000	$4,242,500	89.7
Florida	4,952,000	7,190,000	7,323,100	101.8
Georgia	3,943,000	5,720,000	5,174,200	90.6
N. Carolina	4,556,000	6,600,000	5,879,400	89.0
S. Carolina	2,382,000	3,470,000	2,982,100	86.2
Tennessee	3,567,000	5,160,000	4,655,500	90.4
6 States	22,666,000	$32,870,000	$30,256,800	92.0

APPENDIX 2

MARKET FORECAST DATA

Table 15

Comparison of U. S. Disposable Income and Sales of Household Waxes and Polishes, 1950-1960

Year	Sales of Household Waxes and Polishes[1/] (thousands of dollars)	Personal Disposable Income (millions of dollars)[2/]	Ratio Sales to Disposable Income
1950	169,010 *	255,000	.000663
1951	187,140 *	257,500	.000727
1952	189,460	263,500	.000719
1953	205,920	277,000	.000743
1954	211,580	280,000	.000755
1955	197,410	303,000	.000652
1956	204,580	316,000	.000648
1957	216,730	320,000	.000678
1958	226,930	325,000	.000699
1959	234,880	342,500	.000686
1960	259,800	354,200	.000733
1950-1960 average			.000700

* Corrected to basis started in 1952

1/ Summary of 1960 Sales of Food Store Products, Food Topics, Volume 16, No. 9, September 1961.

2/ Disposable income reported in 1961 Statistical Abstract of the U. S., and converted to 1960 dollars by using cost of living index.

APPENDIX 3

FREIGHT SAVINGS CALCULATIONS FOR AN ATLANTA PLANT
OVER A CHICAGO PLANT SERVING THE SOUTHERN MARKET

Wholesale Distribution Points	Market Area	Sales in Market Area	Shipping Weight of Sales, lbs.[1/]
Atlanta	33% of Tennessee; Georgia; Alabama	$10,968,530	21,937,060
Tampa	Florida	7,323,100	14,646,200
Charlotte	North Carolina; South Carolina	8,861,500	17,723,000
Memphis	67% of Tennessee; 50% of Mississippi; 50% of Arkansas	5,178,660	10,357,320
Dallas	50% of Arkansas; 50% of Oklahoma; 50% of Texas	12,185,000	24,370,000
Richmond	Delaware; Maryland; Virginia; W. Virginia	17,650,000	35,300,000
Houston	20% of Louisiana; 50% of Texas	8,522,000	17,044,000
New Orleans	80% of Louisiana; 50% of Mississippi	4,598,000	9,196,000

1/ 2 pounds per dollar of retail sales.

FREIGHT SAVINGS BASED ON A COMPANY HAVING 10 PER CENT OF THE MARKET

Shipping Wgt. in Pounds	Destination	Origin			
		Chicago		Atlanta	
		$/cwt.[1/]	Freight	$/cwt.[1/]	Freight
2,193,706	Atlanta	1.20	26,300	-	-
1,772,300	Charlotte	1.30	23,050	.66	11,700
2,437,000	Dallas	1.64	39,967	1.55	37,774
1,704,400	Houston	1.74	29,657	1.55	26,418
1,035,732	Memphis	.97	10,046	.81	8,389
919,600	New Orleans	1.35	12,415	.88	8,092
3,530,000	Richmond	1.52	53,656	.93	32,829
1,464,620	Tampa	1.59	23,300	.866	12,680
			218,391		137,882

Savings: $80,509 per year

Converting Dollars of Sales to Pounds of Product

Catalogs and price lists were used in determining what a dollar of sales represents in shipping weight. For the floor and furniture polishes the average is 2.88 pounds per dollar of retail sales. The markup for retail price is 75 per cent of the wholesale price. Automobile polish shipping weight is 1.09 pounds per dollar of retail sales and the markup is 100 per cent. Shoe polish shipping weight is 1.45 pounds per dollar of retail sales and the markup is 90 per cent. The average for household waxes and polish is 2 pounds per dollar of retail sales and the wholesale sales are 54 per cent of retail sales. Data and calculations follow:

1/ Rail rates for 60,000 pound carloads. Where incentive rates are in effect, the rate in the table is the average of the minimum on 22,000 pounds plus the excess on 38,000 pounds.

Product	Fraction of Retail Sales		Shipping Weight Per Dollar of Retail Sales (pounds per dollar)		
Floor & Furniture Polish	.496	×	2.88	=	1.433
Automobile Polish	.208	×	1.09	=	.227
Shoe Polish	.296	×	1.45	=	.430
Total	1.000				2.090

pounds per dollar, and rounded off to 2 pounds per dollar of sales.

Converting Retail Sales to Wholesale or Manufacturers' Dollars

Product	Fraction of Retail Sales		Markup Factor		
Floor & Furniture Polish	.496	÷	1.75	=	.283
Automobile Polish	.208	÷	2.00	=	.104
Shoe Polish	.296	÷	1.90	=	.156
Total	1.000				0.543

Wholesale sales are 54.3 per cent of retail sales for household waxes and polishes.